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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/645,295

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Yasuhiro Mori

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EXAMINER

COMPTON, ERIC B

ART UNIT

PAPER NUMBER

3726

DATE MAILED: 09/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/645,295

Applicant(s)

MORI, YASUHIRO

Examiner

Eric B. Compton

Art Unit

3726

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: in section [0017], line 5, the parenthetical editing should be removed, and "seat" read --seal--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 3-5 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 3, line 4, recites "disposing a sleeve on an inner ring." However, it is not clear how the sleeve (3) is disposed on an inner ring of the bearing, since the sleeve must be disposed on an outer race of the bearing for relative rotation with the shaft (1). See Figures 1, 5, and 7-8.

Regarding claims 4-5, these claims depend from claim 3 and therefore also raise an issue of enablement.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 3-5 and 6-8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 3, line 4, and claim 6, line 4, "the ball bearing" is ambiguous since it is not clear which ball bearing Applicant is referring to since there are two ball bearings. See Claims 3 & 6, line 3 ("mating a ball bearing at each end of a shaft," implying two ball bearings).

In claim 3, line 4, "an inner ring" is indefinite since it is not clear which ball bearing Applicant is referring to.

Regarding claims 4-5 and 7-8, these claims depend from claim 3 and therefore are also indefinite.

6. Claims 4 and 7 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: that the fixing state requires laser welding. See [0017] (disclosing in absence of sharp edge, laser welding fails due to a gap). Thus, the sharp edge is implied to be necessary to improve laser welding. See [0032] (protrusion allows for better weld). This matter should be included.

Also, it is noted that claims fails to expressly state the pre-loading is maintained during the fixing. See [0010]; Cf. Claim 9 ("laser welding the seal member.. while the pressing member applied the preload.").

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(f) he did not himself invent the subject matter sought to be patented.

8. At least Claim 1 is rejected under 35 U.S.C. 102(f) because it appears that applicant did not (solely) invent the claimed subject matter. U.S. Pat. Pubs. 2004/0131292 & 2004/0120079, to Koyama and Tsuchiya, respectively disclose essentially the same invention. However, the inventor of the instant invention Mori is different from the inventors of those references. It is noted that all three have a common assignee of MINEBEA CO., LTD.

9. Claims 3, 6, and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. 5,882,122 to Noguchi et al.

Noguchi discloses a similar invention, see Figure 6; Col. 24, lines 3-32, where bushes 29 are welding into place to preload bearings. Figures 8-9 show an alternate embodiment in where the bushes are replaced by "pressure member 32." See Col. 25, lines 45-59.

Here, in the embodiment shown in FIG. 6, the inner races 1 are not directly but indirectly fixed to the shaft member 7 as follows. In order to fix the inner races 1 in the axial direction in the condition in which the inner races 1 are subjected to a preload, bushes 29 are made to abut on end surfaces of the two inner races 1 from the axial direction, and the bushes 29 are fixed to the shaft member 7 by laser welding or bonding to thereby fix the inner races 1 to the shaft member 7 indirectly.

In this manner, not only the outer races 2 can be loosely fitted to the

Art Unit: 3726

sleeve 27 but also the inner races 1 can be loosely fitted to the shaft member 7. Accordingly, the deformation of the inner and outer races 2 and 1 of the bearings caused by the fitting is avoided, so that reduction of non-repeatable run-out of the spindle apparatus is improved more greatly.

Further, because the bushes 29 are fixed to the shaft member 7 to thereby fix the inner races 1 to the shaft member 7, there arises also an advantage that the deformation of the raceway surfaces of the inner races 1 caused by the direct fitting of the inner races 1 to the shaft member 7 is avoided. In addition, because the bushes 29 abut on the end surfaces of the inner races 1 from the axial direction, the raceway surfaces of the inner races 1 are never deformed by the abutting of the bushes 29.

In this occasion, if welding is used instead of bonding with an adhesive agent, there arises also an advantage that not only assembling of the spindle apparatus is completed in a short time but also the fact that there is no out-gas trouble leads to the improvement of the working atmosphere.

Col. 24, lines 3-31.

However, the reference is unclear as to where the pressure member 32 is a seal.

Cf. U.S. Pat. 6,513,983 (same inventors and assignee), Col. 3, line 63 – Col. 4, line 10 (refers to same similar structure as “labyrinth seal.”)

Regarding claims 3, and 6, the method disclosed above anticipates this claim, since the pressure member inherently functions as a seal (as recognized in U.S. Pat. '983).

This method must be performed with some apparatus, having a support means and pressing means (together to provide the pre-loading force to the bearings), and a laser welding apparatus (to perform laser welding). See *e.g.*, U.S. Pat. 5,529,404 to Robinson et al.

Regarding claim 9, in this, case the apparatus of Noguchi is clearly capable of welding a seal as well, since the “pressure member” 32 inherently functions as a seal.

Note: A claim containing a “recitation with respect to the manner in which a claimed

Art Unit: 3726

apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. 5,882,122 to Noguchi et al in view of U.S. Pats. 4,078,287 to Kupchick and McAllister et al.

Noguchi teaches the invention cited above. However, the reference does not teach press blanking (or stamping) the seal members.

Kupchick and McAllister both disclose stamping seals for bearings.

Regarding claims 5 and 8, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have press blanked (or stamped) the pressure member (seal) of Noguchi, in light of the teaching of Kupchick and McAllister, in order to efficiency form seals.

12. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. 5,882,122 to Noguchi et al in view of U.S. Pat. 5,529,404 to Robinson et al.

Noguchi teaches the invention cited above. However, the reference does not disclose the particulars of the pressing member.

Robinson discloses an apparatus for preloading bearings and laser welding them into place. Pressure members (60) are distributed circumferentially to preload the pivot assembly. At the spaces between the pressure members (60) spot welds (40D) can be made using a laser-welding device. See Figure 3E; Col. 4, lines 63-67. Therefore, the spaces between the pressure members (60) can be considered a plurality of grooves formed parallel to an axis of the pressing members which extend to a surface of the member to be pressed.

Regarding claim 10, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have pressed the pressure member (seal) of Noguchi using a pressing member having grooves, in light of the teachings of Robinson, in order to allow for welds to be formed in the same vicinity as the pressing.

Allowable Subject Matter

13. Claims 4-7 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

14. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record does not teach or suggest a method of manufacturing a pivot assembly comprising: imparting a pre-load to pressure to the inner ring by applying pressure on the seal member; and fixing [by laser welding] the seal member to

Art Unit: 3726

an outer circumference of the shaft [while under pre-load], by forming a sharp edge on an edge part of the seal member, causing the sharp edge to stick closely at a point to one of the outer circumference of the shaft and the inner circumference of the sleeve, and fixing the sharp edge at the point, in combination with the other claimed subject matter.

15. There is discussion in Noguchi of forming a sharp edge of the seal member for (laser) fixing.

Response to Arguments

16. Applicant's reply did not respond the issue of inventorship, the Examiner pointed out in the previous Office Action. Applicant is requested to resolve the issue of inventorship between the similar applications noted.

17. In reviewing the claims, a number of 112 issues were further discovered.

18. Also after further review of the prior art, the Examiner believes the Noguchi (discussed above) inherently discloses a the same invention of claims 3, 6 and 9.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric B. Compton whose telephone number is (571) 272-4527. The examiner can normally be reached on M-F 9-5.

Art Unit: 3726

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Bryant can be reached on (571) 272-4526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Eric B. Compton
Primary Examiner
Art Unit 3726

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